In my collection of immature specimens of *Anthidium* I found two mature larvae which have been identified by Dr. Jerome G. Rozen, Jr., The American Museum of Natural History, as *Dioxys* sp. They were found in nests of *Anthidium* collected at Smithfield, Utah, in 1961 and 1962. These larvae, probably *Dioxys productus productus*, will be described by Dr. Rozen.

Additional observation of *Dioxys* are needed to determine the site of egg deposition and its relation to the position, in a cell series, of the parasitized cell. The pollen on the abdomen of the female *Dioxys* which I collected may indicate that the egg is laid deep in the pollen mass or in the down beneath it. The nature of the early instar larvae and their relationship with host eggs or larvae also need investigation.

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The Genus *Aspidaphium* Börner

(Homoptera : Aphididae)

Clyde F. Smith and George F. Knowlton[1]

The genus *Aspidaphium* which occurs on mosses was originally described by Börner (1939) with *A. escherichi* as the type of the genus. *A. jeschkei* was described at the same time. Later, *A. cuspidati* was described by Stroyan (1955). Börner and Heinze (1957) and Heinze (1960) discussed the genus and presented a key to the species. Stroyan (1963) studied the material he had been able to collect during recent years as well as the Börner types and he concluded that *A. jeschkei* Börner was a synonym of *A. escherichi* Börner. This paper presents the description of a new species of *Aspidaphium* and a key to the known species.

[1] Contribution from the Department of Entomology, North Carolina State University at Raleigh, North Carolina, and the Department of Zoology, Utah State University, Logan, Utah.
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Genus ASPIDAPHIUM Börner, 1939

The genus is redescribed as follows: Head of young nymphs with or without sculpturing; antennae four-segmented; abdomen without sculpturing or papillae; hind tibiae spinulose. Aptera with vertex broadly arched, head and body granulated or covered with bead-like papillae especially on the sides of the body. Antennae may be five- or six-segmented in aptera and alate. Media one- or two-branched. Siphunculus with opening oblique or on the side. Cauda small, blunt, constricted before the apex.

TYPE OF THE GENUS.—*Aspidaphium escherichi* Börner, 1939.

KEY TO SPECIES OF ASPIDAPHIUM

1. Processus terminalis of alate and aptera 2.00 or more times as long as base of antennal segment V; opening of siphunculus at tip and slanted ..... *utahensis* Smith and Knowlton, new species
   Processus terminalis less than 2.00 times as long as base of antennal segment V; opening of siphunculus tending to be toward the side and partially covered at tip 2

2 (1). Processus terminalis from 1.20 to 1.50 times as long as base of antennal segment V in aptera and 1.67 to 2.18 times as long as base in alate; aptera with very strong and regular papillar sculpture, the lateral papillae being flat- or convex-topped and with a basal constriction ..... *cuspidati* Stroyan
   Processus terminalis 0.78 to 1.16 times as long as base of antennal segment V in aptera and 1.00 to 1.18 times as long as base in alate; aptera with very variable sculpture, but with the lateral papillae not regularly flat-topped or constricted at the base ..... *escherichi* Börner

Aspidaphium utahensis Smith and Knowlton, new species

APTEROUS VIVIPARA.—(Table 1 and Fig. 1.) Dark brown, appendages generally lighter than the body, siphunculi and cauda nearly as dark as the body. Lateral papillae very conspicuous, especially on specimens collected in fall of year, mid-dorsal papillae less pronounced; siphunculi dark, with squamiform sculpturing, opening oblique, with only a slight indication of the opening having migrated to the side; cauda dark, apparently bearing three or four hairs which are small and difficult to see.

Some of the apterae were conspicuously smaller than others (see Table 1, Nos. 7 and 11) but no morphological differences which were considered significant were observed.

ALATE VIVIPARA.—Mounted specimen. Head dark brown; antennae light brown, five- or six-segmented as this specimen has five segments in one antenna and six segments in the other, antennae of alatoid nymphs with five or six segments. Sensoria oval, scattered irregularly over antennal segments III and IV, and V when antennae are six-segmented. Thorax dark brown, wings hyaline, veins conspicuous, media with one branch, legs pale brown. Abdomen pale, with dark, broken sclerites on dorsum; siphunculi dark brown, without flange and with an

TABLE 1. Measurements in millimeters of *Asphidaphium utahensis*.

No.	Body Length	Head Width	Antennal Segments III	IV	V	Rostral IV + V	Hind Tibia	Hind Tarsus	Siphunculus	Cauda
					Apterous vivipara					
1[1]	1.00	0.30	0.20	0.10	0.07 + 0.18	0.07	0.41	0.08	0.15	0.05
2	1.09	0.32	0.24	0.11	0.07 + 0.20	0.06	0.34	0.08	0.18	0.05
3	1.00	0.32	0.15	0.08	0.06 + 0.13	0.07	0.36	0.07	0.14	0.06
4	1.08	0.35	0.28	0.15	0.09 + 0.21	0.07	0.48	0.09	0.17	0.06
5[2]	1.09	0.32	0.25	0.12	0.08 + 0.18	0.07	0.48	0.10	0.17	0.07
6	1.06	0.36	0.27	0.14	0.08 + 0.20	0.07	0.50	0.10	0.16	0.05
7	0.70	0.27	0.13	0.07	0.06 + 0.13	0.06	0.30	0.06	0.09	–
8	0.94	0.30	0.20	0.10	0.07 + 0.16	0.07	0.41	0.07	0.15	0.06
9	1.10	0.34	0.18	0.09	0.07 + 0.14	0.08	0.43	0.08	0.18	0.06
10	1.05	0.32	0.21	0.09	0.07 + 0.15	0.07	0.45	0.07	0.16	0.06
11	0.85	–	0.12	0.06	0.05 + 0.13	0.06	0.29	0.06	0.11	0.05
					Alate vivipara					
1[3]	1.15	0.32	0.37	0.13	0.09 + 0.22	–	0.57	0.06	0.13	0.06

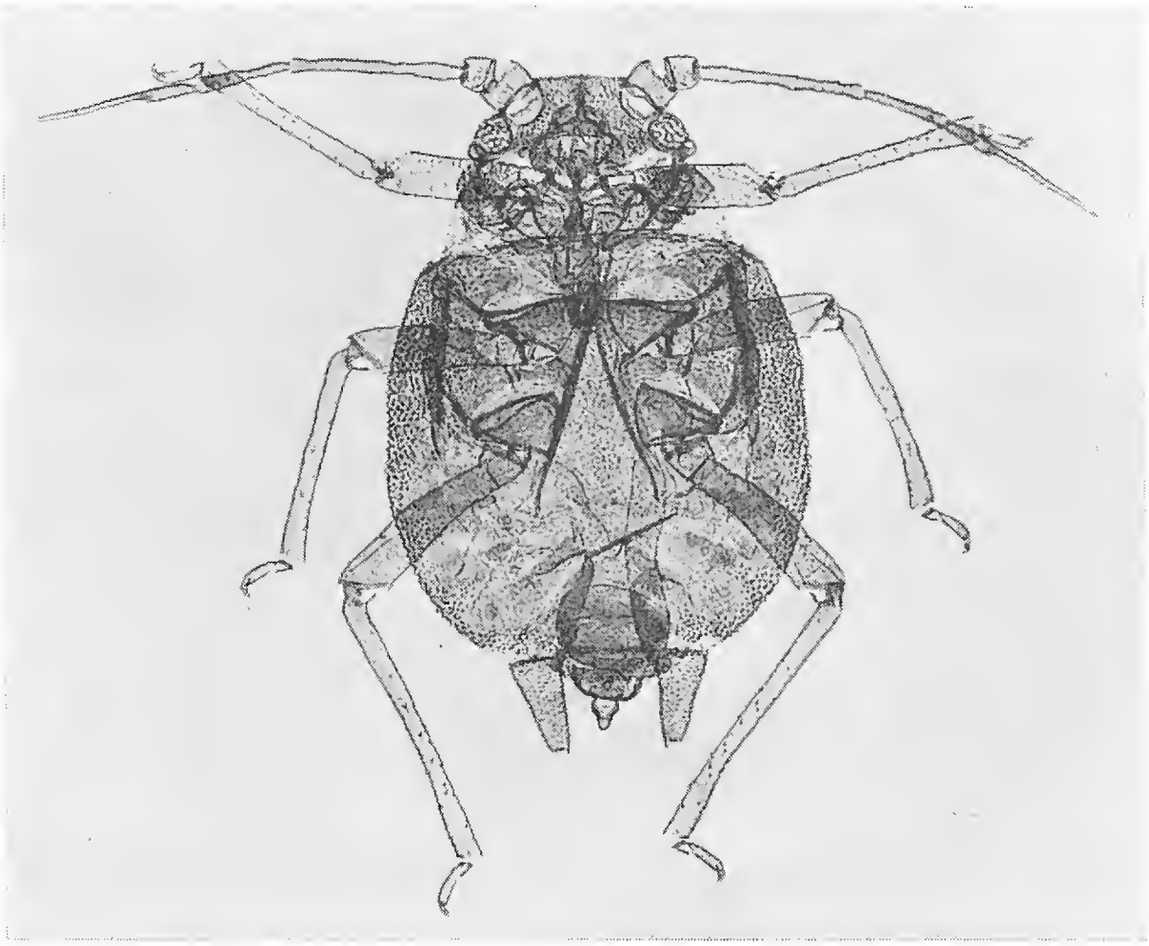
[1] Specimens nos. 1–6 from collection no. 60–948; nos. 7–8, coll. no. K 63-197; no. 9, coll. no. K 63-3; nos. 10–11, coll. no. K 39.
[2] Holotype.
[3] *Alate vivipara* coll. no. K-43. The antenna on the right side was five-segmented and six-segmented on the left side. Measurements of segments III–VI were 0.27, 0.16, 0.17, 0.09 plus 0.22, respectively.

oblique opening; cauda dark, apparently bearing three small and inconspicuous hairs, two on one side and one on the other side.

TYPES.—*Holotype* (Coll. 60-948), United States National Museum. Paratypes (Coll. 60-948) North Carolina State University at Raleigh, and the collections of the authors.

TYPE LOCALITY.—ASPEN GROVE, MT. TIMPANOGOS, UTAH. Collections: Holotypes and paratypes were collected individually from moss (*Cratoneuron filicinum* (Hedw.) Roth, determined by Lewis Anderson, Duke University, Durham, N. C.). Mt. Timpanogos (Aspen Grove), Utah, 26 August 1960 (Coll. 60-948 C. F. Smith and C. K. Smith), holotype and 16 paratypes mounted on 11 slides.

The other collections were made by G. F. Knowlton (K) and cohorts (Mrs. M. W. Knowlton = MWK; W. J. Hanson = H; K. Tilley = T) from field collections of moss placed in a Berlese funnel. UTAH: American Fork Canyon, 7/19/51 (K) 1 slide. Blacksmith Fork Canyon, 5/3/63 (K 63-9) 1 slide; 5/3/63 (K 63-11) 1 slide; 10/8/63 (K 63-77 K.-Hanson) 1 slide; 10/8/63 (K 63-82 K.-Hanson) 6 slides; 10/8/63 (K 63-83 K.-Hanson) 4 slides; 10/14/63 (K 63-107) 2 slides. East Canyon, 10/22/60 (K 454) 1 slide; 10/23/60 (K 452) 1 slide; 10/24/62 (K 62-85) 1 slide. Logan Canyon (Ricks Spring), 9/18/63 (K 63-112) 4 slides; 9/21/63 (K 63-110) 4 slides; 9/24/63 (K 63-70) 4 slides. Logan Canyon (Rt. Fork), 10/23/60 (K-464) 1 slide. Logan Canyon (Spring Hollow), 9/6/59 (K-55) 1 slide; 9/24/63 (K 63-65) 4 slides; 9/24/63 (K 63-75) 10 slides; 9/30/63 (K



EXPLANATION OF FIGURE

Fig. 1. *Aspidaphium utahensis* Smith and Knowlton, new species. Photograph made by A. T. Olive.

63-73 K-MWK) 10 slides. Logan Canyon (3rd Dam Area), 9/25/63 (K 63-74 K-MWK) 4 slides. Logan Canyon, 8/29/59 (K-38) 2 slides; 8/29/59 (K-39) 4 slides; 10/15/60 (K-451) 1 slide; 10/21/60 (K-453) 1 slide; 10/26/60 (K-465) 1 slide; 8/13/62 (K 62-70) 2 slides; 4/30/63 (K 63-4) 2 slides; 5/2/63 (K 63-3) 3 slides; 5/8/63 (K 63-2) 4 slides; 9/11/63 (K 63-64) 2 slides; 9/14/63 (K 63-200) 1 slide; 9/18/63 (K 63-111) 7 slides; 9/20/63 (K 63-105) 6 slides; 9/20/63 (K 63-108) 2 slides; 9/26/63 (K 63-72) 9 slides; 9/28/63 (K 63-69 K-MWK) 9 slides; 10/1/63 (K 63-71) 6 slides; 10/3/63 (K 63-81) 3 slides; 10/4/63 (K 63-76) 6 slides; 10/7/63 (K 63-80); 10/8/63 (K 63-78 K-MWK) 2 slides. IDAHO: Cub River Canyon, 12/9/58 (K.-Tilley) 3 slides; 8/30/59 (K-40) 1 slide; 8/30/59 (K-41) 1 slide; 8/30/59 (K-42) 1 slide; 8/30/59 (K-43) 3 slides; 9/8/59 (K-57) 9 slides; 9/7/63 (K 63-60) 4 slides; 9/7/63 (K 63-62) 4 slides; 9/7/63 (K 63-63) 4 slides; 9/7/63 (K 63-197) 4 slides; 10/12/63 (K 63-106) 3 slides; 10/12/63 (K 63-113) 2 slides.

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RECENT LITERATURE

The Ground-Beetles (Carabidae, excl. Cicindelinae) of Canada and Alaska. Part 3. By Carl H. Lindroth. Opuscula Entomologica, Supplementum XXIV. P. 201–408, text figs. 102–207, many compound. 18 October 1963. Price 35 Swedish crowns. For sale at the Zoological Institute, University of Lund, Lund, Sweden.

Students interested in the tribe Bembidiini of the United States proper should not overlook this important work. Just as the genus *Bembidion* is the largest in the family Carabidae on a world basis, so it is in the Nearctic fauna. Despite this, only two attempts have been made to treat a majority of our species in the past 70 years: Hayward in 1897 and Casey in 1918 *et. seg.* Both are terribly out-of-date; Hayward's series were often composite and Casey had an unusual concept of species.

Lindroth's masterly study is based on a knowledge of the Palearctic fauna and literature, extensive fieldwork in Canada and Alaska, examination of the major collections in the United States, and examination of the types. He has dissected the genitalia of most of the male types and gives illustrations for a great many species. There is a key to groups and a key to species which runs to 225 couplets and covers over 200 species and subspecies. Ten of the new species occur in the USA, four of them only there, and several species recorded for southern Canada may be expected in adjacent states. A number of the type localities are designated for old species. In addition to taxonomic notes, each species recorded from Canada and Alaska (total 162) has data under the headings Distribution, Ecology.

This Part 3 also contains the last two pages on *Trechus* and treatments of *Asaphidion* and *Phrypeus*.—Hugh B. Leech, *California Academy of Sciences, San Francisco.*